FIRST PUBLIC MEETING

FOR THE

Clinch River, Plum Creek, Middle Creek and Coal Creek

TMDL Development

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DEQ- Southwest Regional Office

Overview

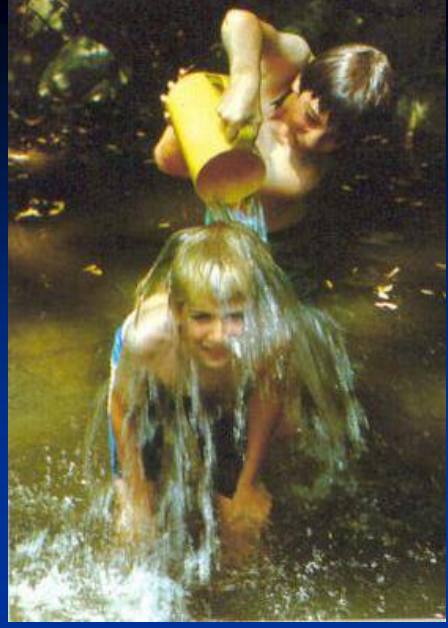
- Department of Environmental Quality
  1. Conducts Water Sampling
  2. Assess the data by comparing it to standards
  3. Problem (**Impaired**) waters are listed In an EPA report called the 303(d) Total Maximum Daily Load (TMDL) List

TMDL required by State and Federal Law

Total Maximum Daily Loads are Mandated by Law

- Federal 1972 Clean Water Act requires
  - **Water Quality Monitoring**
  - **Periodic Assessment and Impaired Waters Listing**
  - **Develop TMDLs for Impaired Waters**
- Virginia's 1997 Water Quality Monitoring Information and Restoration Act (WQMIRA) requires
  - **TMDLs for Impaired Waters**
  - **An Implementation Plan**

Designated Uses



Recreation *(swimming and boating)*

Aquatic Life

balanced, indigenous including game fish

Wildlife

Edible natural resources

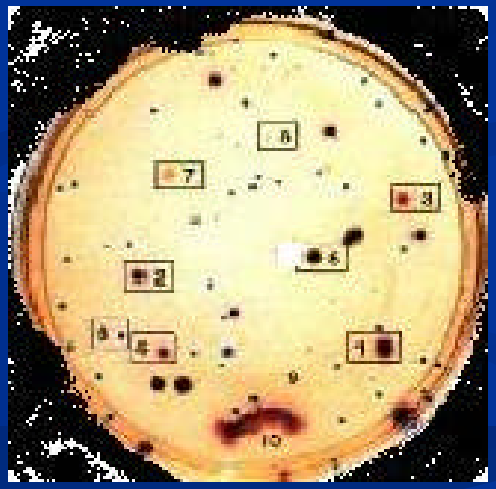
Fish

Shellfish (on the coast)

DEQ

What are Water Quality Standards?

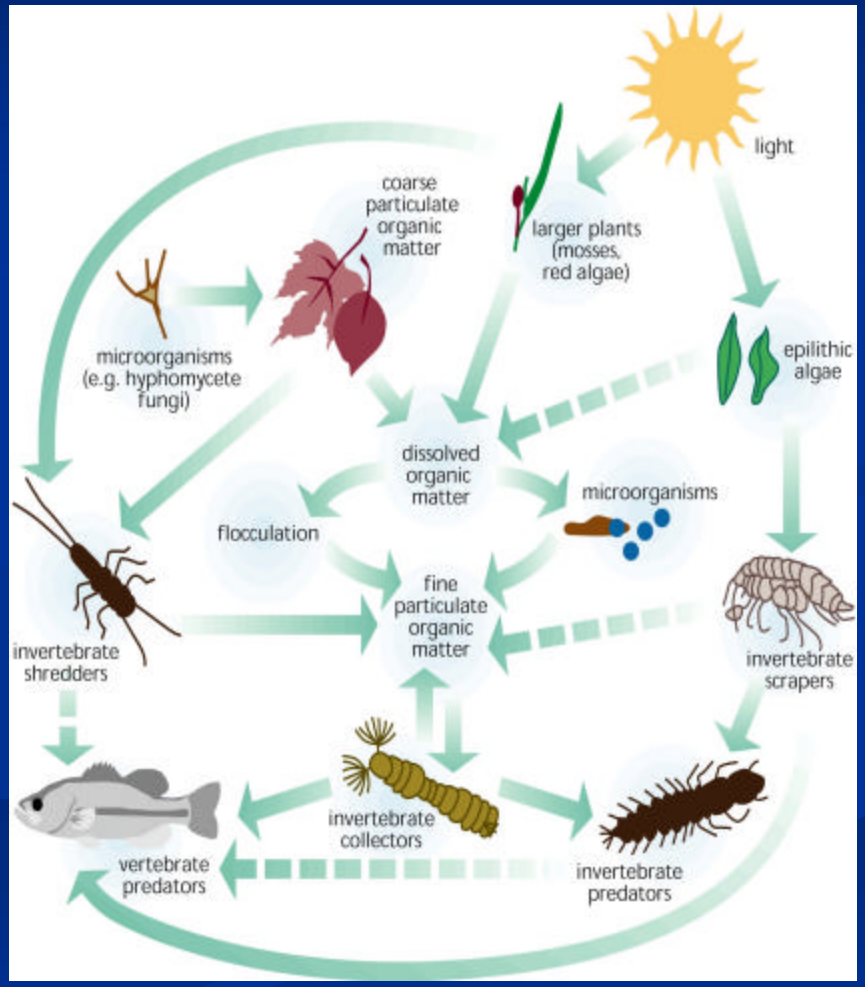
- **Numeric** or **Narrative** Limits designed to protect designated uses
  - **Recreational use**: measured by the number of colony forming units of bacteria in the water
  - **Aquatic life use**: measured by the numbers and varieties of aquatic organisms that live in our streams



Aquatic Life Use: How do we determine aquatic health?

Benthic Macro Invertebrates are Good indicators of Water Quality

- **High diversity**
- **Respond to environmental conditions predictably and quickly**
- **Wide spread distributions and relatively easy to identify**



Pollution Intolerant Invertebrates

Mayfly

Stonefly

Caddisfly

Water Penny

Moderately Pollution Tolerant Invertebrates

Crayfish

Net spinning Caddisfly

Dragonfly

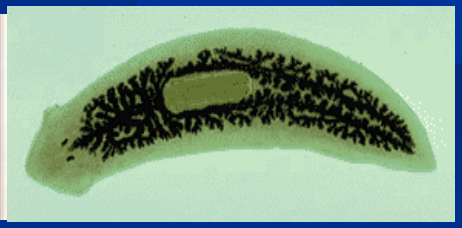
Aquatic Sowbug

Highly Pollution Tolerant Invertebrates

Midge Larvae

Segmented Worm

Leach



Flatworm

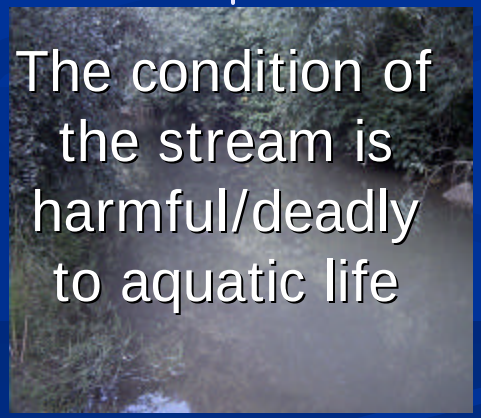
Clinch River and Tributaries

Why Are We Here?

Two Separate Problems!

#1 Bacteria 

#2 Aquatic Life 



Approximately 28 impaired stream miles.

Why are We Here?

Not Supporting <u>Recreational Use</u> or <u>Aquatic Life Use</u>

- **Bacteria Standard** (9 VAC 25-260-170) " E. Coli no more than 235 bacteria per 100 ml

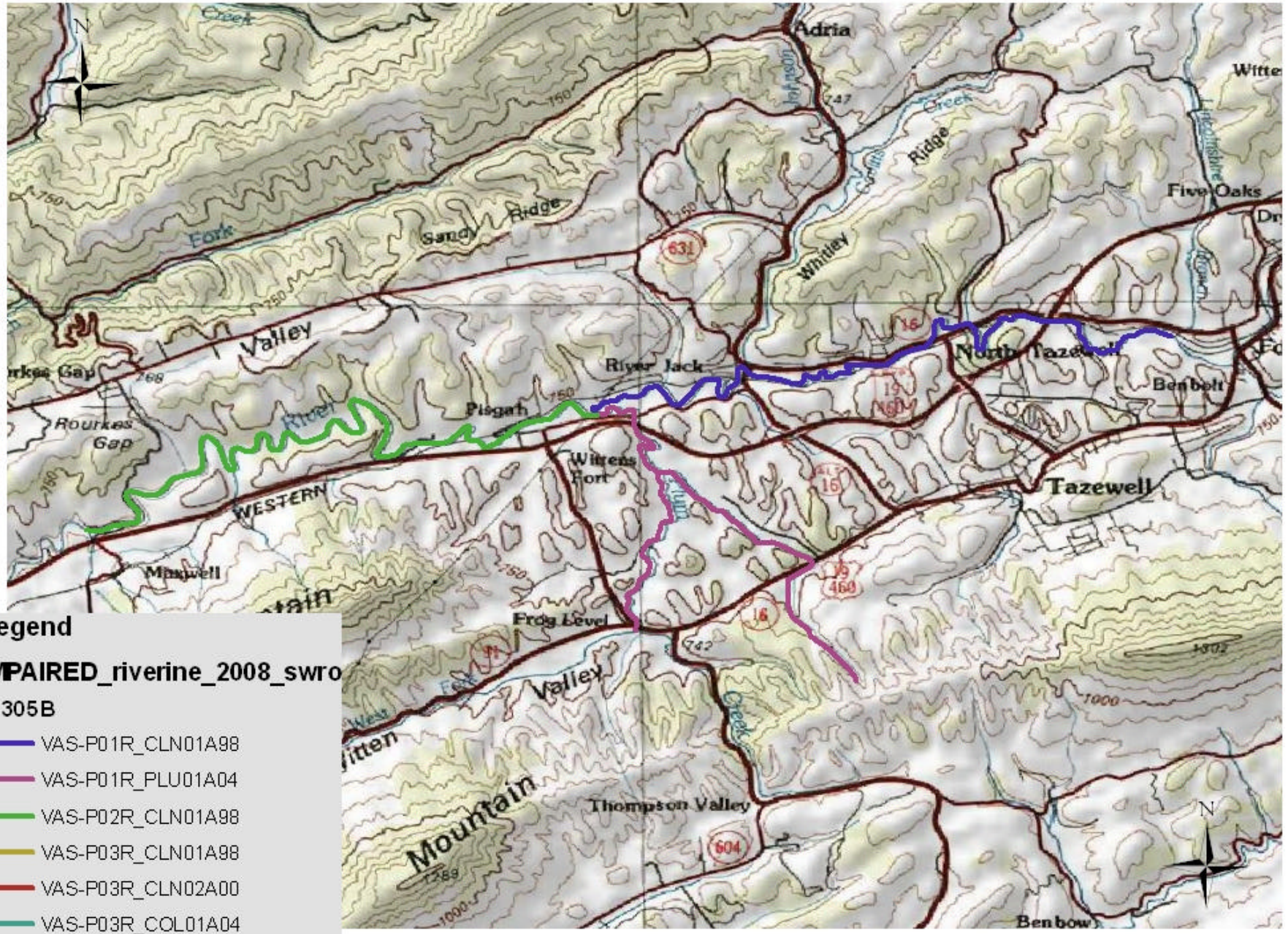
- **General Standard** (Benthic) (1998)

  (9 VAC 25-260-20): "All state waters shall be free from substances…which are harmful to human, animal, plant, or <u>aquatic life</u>."

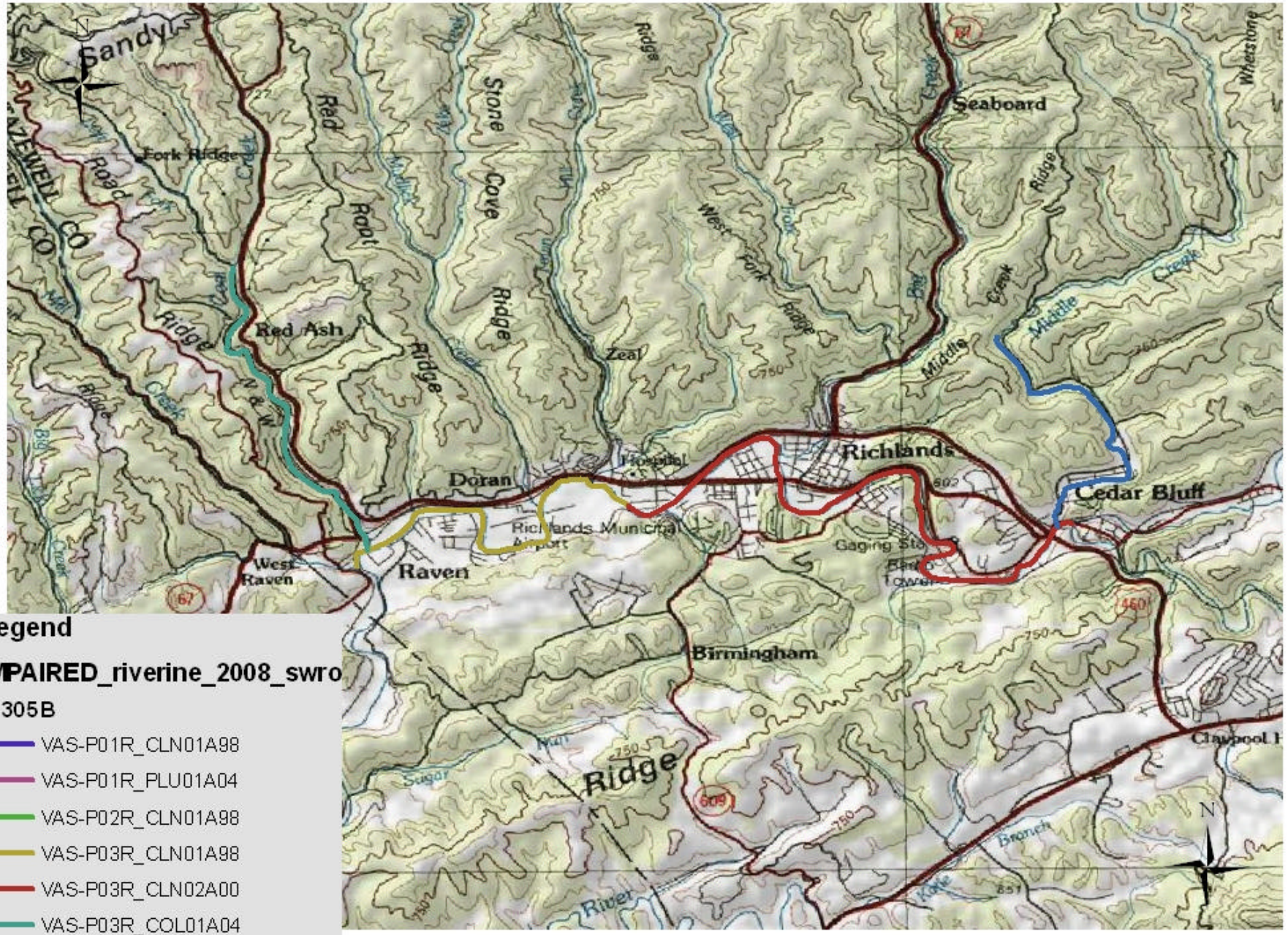
Impairments

Water	Impairment
Clinch River	Bacteria
Plum Creek	Bacteria
Middle Creek	Bacteria
Coal Creek	Bacteria and Benthic

Upper Clinch TMDL (P01, P02)



Upper Clinch TMDL (P03)



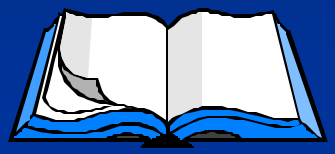
What is a **TMDL** or Total Maximum Daily Load?

- **Amount of a pollutant that a waterbody can receive and still meet water quality standards**
- It is pollutant specific
  - Aquatic Life Stressors
  - Bacteria
- It is a process to restore impaired waters
- A special study that:
  - Identifies all significant pollution sources,
  - Calculates amount of pollution from each source, and
  - Calculates pollution reductions, by source, needed to attain water quality standards.

What Next?

Total Maximum Daily Load

Implementation Plan



We Are Here

- Identifies permit controls, best management practices, or remediation options needed to make necessary pollutant reductions

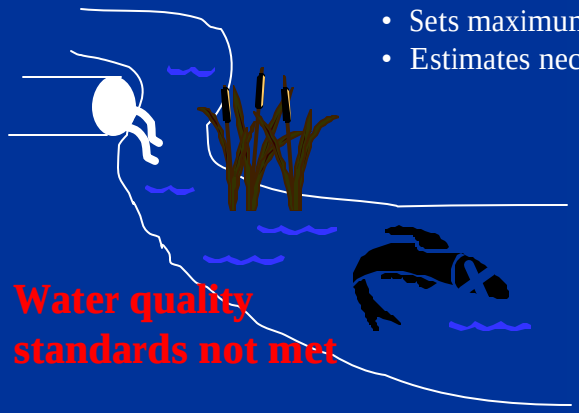
Implementation

Clean

Water quality standards met

Polluted

- Calculates amounts from each source
- Tracks pollutants in the system
- Sets maximum pollutant load
- Estimates necessary pollutant reductions



Water quality standards not met

The Process

What are the Steps in the TMDL Process?

1. Public notice for TMDL development
2. TMDL Study with Public Meeting - Monitoring and Modeling the Watershed
3. Public notice for Draft TMDL
   - Public Meeting with 30-day comment period
4. Submit to EPA for approval
5. State Water Control Board adoption of TMDL
6. TMDL Implementation Plan
7. Implementation of Corrective Actions Prescribed by Implementation Plan
8. Further Monitoring to Measure Success

Information

- **TMDL**
  - **Virginia**
    - **DEQ homepage -** http://www.deq.virginia.gov/tmdl
  - **Federal**
    - **EPA homepage -** http://www.epa.gov/owow/tmdl/

Thank You !

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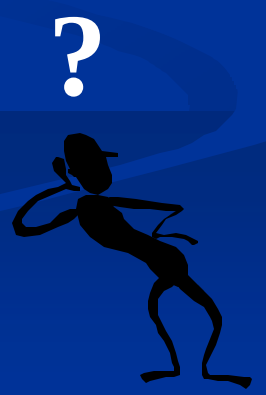
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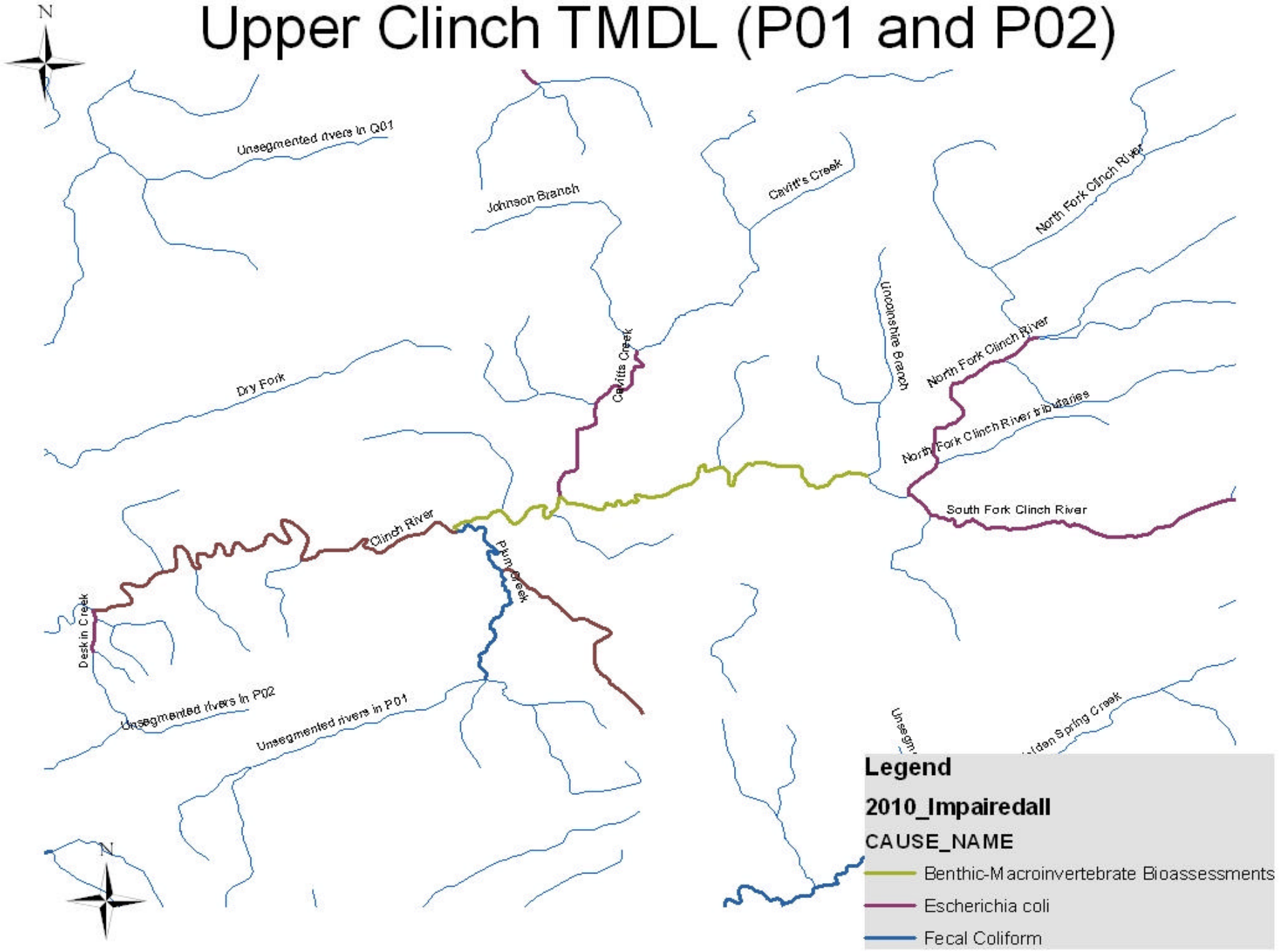
Upper Clinch TMDL (P01 and P02)



Upper Clinch TMDL (P03)